

Claims 1-14 are cancelled.

15. (currently amended) An apparatus for high energetic ultrasonic tissue treatment in a target area inside a living body from an outside surface or a body cavity of the living body comprising:

an ultrasound generator;

an exchangeable member to be applied against the skin or mucous membrane at the site of treatment;

a transducer connected with the ultrasound generator to emit generated therapeutic ultrasound energy through said exchangeable member;

said exchangeable member providing a cooling means comprising an inlet and an outlet configured to receive and discard a circulating cooling fluid, respectively, for cooling a contact surface of said exchangeable member to be engaged with the skin or mucous membrane and a surface of said transducer, wherein said circulating cooling fluid being in direct fluid communication with said surface of said transducer, and

wherein said exchangeable member forms a heating exchange element between the apparatus and the tissue.

16. (previously presented) The apparatus according to claim 15, wherein said exchangeable member allows adjustment of the relative position of the transducer and said exchangeable member to define the location of the target area to be treated, and to concentrate the therapeutic ultrasound energy emitted through said exchangeable member on tissue to be treated medically in the target area.

17. (cancelled)

18. (currently amended) The apparatus according to claim ~~17~~ 15, further comprising:

means for controlling temperature of the circulating fluid

19. (currently amended) The apparatus according to claim ~~17~~ 15, further comprising:

means for measuring a temperature of said contact surface.

20. (previously presented) The apparatus according to claim 15, wherein the ultrasound generator is also generates diagnostic ultrasound energy to be emitted by the transducer, and further comprises a comparator for comparing echoes of diagnostic ultrasound energy from treated tissue in the target area with backscattered signal of either diagnostic or therapeutic ultrasound energy from untreated tissue.

21. (previously presented) The apparatus according to claim 20, wherein the comparator is operatively connected with the transmitter to interrupt the transmission of therapeutic ultrasound energy when the echoes of backscattered signals equal a reference signal from untreated tissue.

22. (previously presented) The apparatus according to claim 20, further comprising:

a calculator for calculating the thickness of the tissue between two surfaces by means of echoes of diagnostic ultrasound energy received at said surfaces.

23. (currently amended) A method for non-invasive ultrasound wave medical treatment of tissue in a target area inside a living body from an outside surface or a body cavity of the living body, comprising the steps of:

emitting diagnostic and therapeutic ultrasound energy with a transducer;

defining the location of the target area by diagnostic ultrasound energy;

concentrating therapeutic ultrasound energy on tissue to be treated medically in the target area;

controlling the condition of the tissue in the target area by backscattered ultrasound between therapeutic ultrasound pulses;

cooling a contact surface of an exchangeable member, to be applied against said tissue, with a circulating cooling fluid, wherein said exchangeable member forms a heating exchange element between said transducer and said tissue;

cooling a surface of said transducer with said circulating cooling fluid, wherein said circulating cooling fluid being in direct fluid communication with said surface of said transducer.

24. (previously presented) The method according to claim 23, wherein the location of the target area is defined by registering echo pulses of diagnostic ultrasound energy emitted against the tissue.

25. (previously presented) The method according to claim 23, wherein the therapeutic ultrasound energy is focused on the target area.

26. (previously presented) The method according to claim 23, wherein the therapeutic ultrasound energy is pulsed.

27. (previously presented) The method according to claim 23, wherein the therapeutic ultrasound energy is emitted in periods spaced by pauses.

28. (previously presented) The energy according to claim 27, wherein the condition of the tissue in the target area is checked by the emission of diagnostic ultrasound energy in said pauses.

29. (currently amended) An exchangeable device to be applied against the skin or mucous membrane at a contact site of an ultrasound treatment, through which exchangeable device a therapeutic ultrasound energy from a transducer, during use, is led, comprising:

cooling means providing an inlet and an outlet configured to receive and discard a circulating cooling fluid, respectively, for cooling a contact surface of said exchangeable device to be engaged with the skin or mucous membrane, and a surface of said transducer, wherein said circulating cooling fluid being in direct fluid communication with said surface of said transducer, and

wherein said exchangeable device forms a heating exchange element between the device transducer and the tissue.

30. (previously presented) A kit comprising an exchangeable device according to claim 29 and an ultrasound source, wherein said exchangeable device is adapted to the ultrasound source.